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19 June 1978

TRANSLATIONS ON EASTERN EUROPE  
SCIENTIFIC AFFAIRS  
No. 589

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BULGARIA

SCIENTIFIC INTERNATIONAL CONFERENCES SCHEDULED IN VARNA

Meetings on Chromatin

Sofia VECHERNI NOVINI in Bulgarian 6 May 78 p 4

[Interview with Corresponding Member Professor Rumen Tsanev by N. Yoleva: "International Scientific Conferences in Bulgaria: The Most Intimate World of Higher Matter"]

[Text] Our interview with Corresponding Member Professor Rumen Tsanev comes at a somewhat tense moment -- right before his trip to Varna. He is being awaited by two important international forums, whose organizer is the Institute of Molecular Biology which he heads. Until 7 May scientists from the socialist countries will take part in a symposium on the subject "The Structure and Function of Chromatin." A Bulgarian-French colloquium on this same subject will be held from 10 to 12 May.

[Question] Dr Tsanev, why is our country playing host to the two forums?

[Answer] Within the framework of the cooperation between the socialist countries in the field of molecular biology Bulgaria is responsible for the coordination of research on chromatin. We have been working with our French colleagues on this subject a comparatively short time. Two years ago an agreement between the Bulgarian Academy of Sciences and the National Center for Scientific Research in Paris inaugurated our joint effort. Our country has an important contribution to make to the study of the molecular organization of chromatin and I believe that we are fully merited to host these two conferences.

[Question] Before you tell us about our contribution, would you explain what chromatin is?

[Answer] Yes, I'll try. Chromatin is the hereditary apparatus of higher organisms -- a specific complex of DNA and proteins in the cell nucleus. If we penetrate the very fine structure of this complex, we will find the answer to one of the great unsolved problems of molecular biology -- the regulation of gene activity. Why is the information recorded in DNA not used completely, but only part of it, and that at a given moment? There is some sort of complex molecular mechanism which controls the "expressivity" of genes, and the research on chromatin has been focused precisely on revealing it.

What are our specific achievements? Several years ago scientists from other countries discovered that chromatin consists of spherical particles whose composition includes a certain ratio of DNA molecules and histones. The group of Professor Chambon of France, who will be a guest of our country for the colloquium, calls them nucleosomes. We discovered that these particles have an even finer structure and consist of two subunits -- seminucleosomes. They can be dissolved and this process probably plays a role in the transfer of genetic information.

Another contribution of ours is the discovery of the way in which histones are distributed in the separation of DNA. There has been a famous polemic on this question and some American scientists attempted to refute us, but the latest data confirm our finding.

Our research on so-called nonhistone proteins led to the discovery of metabolically stable proteins which are not exchanged as rapidly as the rest. They are always bound with DNA and histones and probably play an important role in gene activity control.

[Question] As a scientist, what do you think is the significance of this research?

[Answer] Molecular biology has to deal with one great problem which directly affects man -- discovering the mechanisms of cell differentiation. Why are different cells -- muscle, nerve etc. -- obtained from a single fertilized ovicell, while the genetic information deposited in the DNA is one and the same? And something else! Disturbance of cell differentiation mechanisms leads to malignant degeneration of tissues, to the appearance of cancer. In order to understand how a cancerous cell is formed, we have to know the regulation mechanisms in a single normal cell.

Or let us take genetic engineering. Science is already developing methods for isolating individual genes and for transferring them from one cell to another. But the control mechanisms of gene activity are not known. For example, after a single insulin gene is "introduced" into the organism, it multiplies, huge quantities of DNA are obtained, but insulin is not produced. You can see for yourself, the key to the solution of many problems which are vitally important to man lies in the most intimate mechanisms regulating cell activity.

Balkan Biochemistry, Biophysics Days

Sofia VECHERNI NOVINI in Bulgarian 6 May 78 p 4

[Interview with Professor Doctor Asen Asenov Khadzhiov, deputy director of the Institute of Molecular Biology of the Bulgarian Academy of Sciences and chairman of the Society of Bulgarian Biochemists and Biophysicists of the Union of Scientific Workers, by G. Sveshtarov: "Balkan Biochemistry and Biophysics Days"]

[Text] Balkan Biochemistry and Biophysics Days were held at the Frederic Joliot-Curie International House of

Scientists in Varna. Professor Doctor Asen Asenov Khadzhiolov, deputy director of the Institute of Molecular Biology of the Bulgarian Academy of Sciences and chairman of the Society of Bulgarian Biochemists and Biophysicists of the Union of Scientific Workers and of the organizational committee of Balkan Biochemistry and Biophysics Days, was kind enough to answer the questions of our staff writer G. Sveshtarov.

[Question] How do you assess the Balkan Biochemistry and Biophysics Days?

[Answer] This was the first conference of its kind of biochemists and biophysicists from the Balkan countries, in which more than 180 scientists from Bulgaria, Yugoslavia, Greece, Turkey and guests from the USSR and Hungary took part. Fifteen plenary papers and 120 scientific communications were delivered. Interest in the conference was due to the fact that biochemistry and biophysics are the foundation of molecular biology -- one of the most promising and rapidly developing lines of inquiry in modern biological sciences.

[Question] What were the fundamental scientific problems considered at the conference and what is their significance?

[Answer] The development of biochemistry and biophysics is taking place on a very wide front and therefore we limited the subject field of the conference to four fundamental problems of greatest promise for theory and practice, namely: nucleic acids and protein biosynthesis; enzymology, a line of inquiry in biochemistry that studies the mechanism of action in enzymes catalyzing chemical reactions in living cells; immunochemistry, which discovers the structure and synthesis of the antibodies that play a crucial protective role; and biomembranes -- fundamental structural elements of cells. They are directly involved in important biological processes such as photosynthesis, respiration etc.

[Question] How do you rate the level of the conference and the contribution of the Bulgarian participants?

[Answer] The papers and communications represented original scientific contributions to the fundamental problems of the conference.

The contributions of the Bulgarian scientists were favorably assessed by the participants in the conference. I can't, of course, survey all the achievements covered at the conference. The paper of the team headed by



Professor Todor Nikolov from the Biological Faculty of Sofia University on the isolation and characteristics of cellulases (enzymes that break down cellulose) was received with interest. This research not only is of a theoretical character, but also reveals prospects for the use of cellulases to raise the nutritional value of feeds and other foods of vegetable origin.

Guests of the conference were world-famous scientists Academician B. Straub of Hungary and Professor B. P. Gotikh of the USSR, whose papers surveyed the latest breakthroughs in discovering the mechanisms of enzyme action and the regulation of gene activity.

Worthy of mention are the interesting and original contributions on the structure of enzyme molecules in the paper of Professor A. Evangelopoulos (Greece) and on the mechanism of enzyme action in the paper of Professor M. Pavlic (Yugoslavia).

In conclusion, I can say that the exchange of scientific information was at a high level and of unquestionable benefit for all participants.

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PROFESSOR DZHAKOV SPEAKS ON DEVELOPMENT OF ELECTRONICS

Sofia RABOTNICHESKO DELO in Bulgarian 20 Mar 78 p 4

[Interview with Academician Emil Dzhakov: "Strategic Areas of Scientific and Technical Progress -- Dynamic Development of Electronics"]

[Text] Following the historic April plenum of the BCP Central Committee, Bulgaria launched the intensified training of personnel in electronics. A decree of the BCP Central Committee and the Council of Ministers on the Improvement of the State Direction of Science and Technical Progress established the Electronics Institute of the Bulgarian Academy of Sciences. Academician Emil Dzhakov was approved as its director. Academician Dzhakov is one of our most distinguished scientists. He has been a corresponding member of the Bulgarian Academy of Sciences since 1948; from 1959 to 1963 he headed the Physical and Applied Electronics Section in the Physics Institute; and since 1963 he has been director of the Electronics Institute. He was elected academician in 1967. He is the generally acknowledged pioneer of radioelectronics in Bulgarian science. A representative of RABOTNICHESKO DELO met with this eminent Bulgarian scientist and interviewed him. The interview covered the range of problems which are of urgent importance for the development of scientific and technical progress in our country. Today we are publishing the interview that took place.

"Electronics," says Academician E. Dzhakov, "is the most extensive and most rapidly developing sphere of science and technology, and its applications have become widespread in science, industry, the national economy and our personal lives. We have a developing electronics industry which is constantly broadening its scope. All this has led to the dynamic development of the Electronics Institute in the 15 years since its founding. The focus of its problem field is adapted to the development of the science and takes into account the development of our electronics industry.

"Our institute is studying questions of emission electronics in relation to certain applied problems. A new efficient photocathode has been found, and a new way to obtain a pencil electron beam emitted by a field-emission cathode. The study of the phenomena of ion absorption by metal layers led to the creation of a new ion-absorption high-vacuum pump with great efficiency along with small size and a comparatively simple working principle. Electron and ion technologies are under development for the needs of the semiconductor industry and microelectronics. Electron-optical research has led to the design of an evaporator using a concentrated electron beam in a vacuum. The investigation of cathode sputtering has made possible the development of a method for obtaining thin layers of various substances. The study of the interaction between electron beams and matter has led to the manufacture of a device for electron-beam welding and cutting. A procedure for electron-beam microlithography is under development.

"Another contemporary field which is being developed at the institute is gas-plasma physics and technology. The physical processes in electric arcs and in plasma burners are under study, as well as some of their applications (deposition of layers, staging of plasmachemical reactions etc.). Recently there has been collaboration through CEMA on a theoretical and experimental study of the processes in dusty plasmas [zaprasheni plazmi] with a view to the design of magnetohydrodynamic generators of electric current.

"The physics and technology of superhigh frequencies are widely represented. Structures and devices for transmission, control and measurements at microwave frequencies are being theoretically and experimentally studied. The interaction of gyromagnetic substances and semiconductors in superhigh-frequency fields is being investigated with a view to certain applications. Millimetric waves are being mastered. The theory of nonlinear and parametric systems at superhigh frequencies has been developed and is being applied in the case of generators, amplifiers and transducers with semiconductor active elements. The obtained results make possible engineering calculations of such devices used in microwave and radar communications. It is finding its way into cryogenic electronics.

"We are also developing analog devices for time-to-amplitude conversion, wide-band logarithmic transducers and amplifiers. New applications are being sought and studied for electronic elements for measuring purposes and for information-processing devices. Original systems with a large number of dynamic equilibrium states have been created, as well as devices with galvanomagnetic elements for the performance of certain mathematical operations. A device based on a new principle has been designed to grade resistors as they are produced.

"The Electronics Institute is also doing work in the newest field of electronics -- quantum electronics. We are working on gas lasers and dye solution lasers, as well as on some applications of laser radiation. Also under development is laser radar for the purpose of determining the parameters of the atmosphere by laser sounding.

"On many of the subjects we are successfully collaborating with allied institutes in almost every socialist country, and first and foremost with the USSR. In this respect the Joint Nuclear Research Institute in Dubna plays a leading role. It was established with the participation of every socialist country for the purpose of concentrating more forces on the forefront of nuclear physics. I have participated in its scientific council for 20 years since its founding and was its vice-director for three years. In this period the Joint Institute has become a most important world center of nuclear science. Its founding enabled nuclear physicists from the socialist countries to work on huge accelerators not attainable for smaller countries. At the same time the institute became a school for moulding young scientific workers. Several score of our associates from Bulgaria are constantly employed there and our nuclear physics has thus been enabled to conduct theoretical and experimental research of the highest level.

"In conclusion, I want to take advantage of this opportunity afforded me by RABOTNICHESKO DELO to express the sincere gratitude of the scientific workers in our institute for the great concern shown by our party for the development of electronics -- this important branch of science whose place is in the mainstream of our socioeconomic development."

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BULGARIA

DEVELOPMENT OF CERTAIN AGRICULTURAL HYBRIDS LISTED

Sofia RABOTNICHESKO DELO in Bulgarian 20 Mar 78 p 4

[Article by Tsonka Kovacheva: "New Hopes Growing in the Experimental Field of the Genetics Institute of the Bulgarian Academy of Sciences"]

[Text] The main efforts of the scientists at the Genetics Institute of the Bulgarian Academy of Sciences are focused on theoretical research. However, applied-scientific problems in genetic selection are also solved ad hoc.

We are talking to Academician Khristo Daskalov and Senior Science Associate Khristo Georgiev. By crossing tomato strains created at the institute with strains from two world-famous breeding and seed-producing firms in Holland and France, with which a contract for collaboration has been concluded, they have obtained valuable new hybrids for hothouse and early-field tomato production. Five of them offer great hopes.

The hybrids "58-0" and "69-0" are intended for hothouse cultivation. What are their advantages over the standard Dutch variety "Extase" now very popular in our hothouses? The results of experiments show that the hybrid "58-0" is superior to the standard both in early maturity and high yield and in market and biological value of the fruit.

"This hybrid," Academician Kh. Daskalov stresses, "is suitable for cultivation under any production system throughout the entire country except for places threatened by the nematode and verticillium."

"As for the hybrid '69-0,'" Khristo Georgiev adds, "it is a bit inferior to the standard in early maturity, but it surpasses it significantly in yield and especially in fruit size. And this characteristic has recently been preferred in foreign markets."

The other three hybrids on which very high hopes are placed are for early field production. The results of experiments conducted thus far in Bulgaria and France show that in a number of their characteristics they are superior to our standard "Triumph," as well as the famous French hybrid "Lucie." The hybrid "M2-S," which the breeders regard as excellent for the production of tomatoes for export, also matures earlier than the two

standards, is resistant to tobacco mosaic, and has higher yields than they. The hybrid "69-24," for its part, matures earlier and has a higher yield than the "Triumph" and has a better market and biological value of the fruit than the "Lucie." This and its all-round resistance to the most important tomato diseases make it a reliable replacement for the "Triumph" with great advantages over it. The data so far from experiments and production tests show the low-growing hybrid "T25-S" to be better than the "Pioneer 2a" for unstaked cultivation and full mechanization. It ripens earlier, has higher yields and larger fruit, and is resistant to tobacco mosaic. The five promising tomato hybrids will undergo production testing this year in the hothouses and gardens of various complexes and enterprises in the country.

Many of the world's institutes and scientists today are working on the Triticale problem which has aroused interest, especially in the past 10-15 years. It is a miracle crop -- the bread grain of the future! This is what some people call this new plant species created by man by crossing wheat and rye. About a hundred years ago the noble flight of thought turned to the bold idea of bringing together in one plant the valuable qualities of both grain crops, of "transferring" to it from the wheat the high yield and high quality of grain, and from the rye its cold- and winter-resistance plus its ability to endure unfavorable conditions.

Four institutes in Bulgaria are at work on the Triticale problem. Roza Baeva, senior science associate at the Genetics Institute, has also been devoting much of her research work to it. This was the subject of her doctoral dissertation. We talk with her about her progress and future plans.

"Considerable progress in creating Triticale varieties that are adopted in practice," she says, "has been made in the USSR, Canada, the United States and Mexico. The Canadian varieties give about a five-percent higher yield than wheat. The Mexican low-growing line rivals the high-yield low-growing wheats. The winter forms created in the USSR by Professor Shulindin give over a 38-percent higher grain yield than the 'Mironovskaya 808' wheat, while one of the lines, intended for the production of green mass, yields from 3000-5500 kg per decare."

"And in your institute?"

"Apart from theory, we also have interesting and important results in our practical work," she continues. "We have created a large assortment of forms and lines which we are studying. But let's not be in a hurry. Let's see how they will turn out in practice. We have already given seeds of the best lines for production testing at agroindustrial complexes in Sofia, Pernik, Blagoevgrad and Ruse okrugs."

"Nevertheless, what characteristics of these lines, demonstrated in the experimental field, warranted your sending them off for production testing?"

"Last year the best of our Triticale lines yielded from 742 to 752 kg of grain per decare in experiments as against 674 for 'Sadovo-1.' They are comparatively low-growing. They are completely resistant to powdery mildew and brown and stem rust from which wheat suffers greatly. Moreover, our lines have a high biological value. This is due to their high protein content (from 16 to 20 percent) and the high lysine content of the protein (from 3.5 to 4.5 percent). Wheat contains an average of about 13 percent protein and the lysine does not exceed 3 percent. Three of our Triticale lines were tested last year at several strain-testing stations. The results are encouraging.

"Nothing remains but for us to wait for the new hybrid tomatoes and Triticale lines created at the Genetics Institute to show their good qualities both in a large production laboratory and at the strain-testing stations in order for them to earn recognition. Thus the practical world will be enriched with new potentials for increasing crop production and for raising its efficiency."

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BULGARIA

NEW ELECTROCHEMICAL PROCESS DEVELOPED BY PROFESSOR NONINSKI

Sofia RABOTNICHESKO DELO in Bulgarian 20 Mar 78 p 4

[Article by Nikolay Cheshmedzhiev: "Reported for the First Time -- A Discovery with Great Effect"]

[Text] We have long known from our chemistry schoolbooks that valuable products for the national economy are produced electrochemically nowadays, with a large share of these accounted for by the metals zinc, copper, cadmium, lead, potassium, nickel etc. The problem on which scientists throughout the world have been working for a long time now is how to accelerate electrochemical processes, and in particular the process of the cathodic separation of metals. We must proudly emphasize that one of the breakthroughs in connection with the acceleration of the electrochemical deposition of metals was accomplished in Bulgaria. Our specialists created a method using so-called "reverse current," which increases severalfold the rate of the electrochemical separation of copper and which has been adopted in Bulgaria and a number of countries. This Bulgarian method at the moment yields copper at a current density (measure of the electrochemical reaction rate) of several amperes per square decimeter. We mention this fact for comparison, because the latest invention of Professor Khristo Noninski of the Higher Institute of Chemical Technology, for which a patent was issued in February and which is based on research performed by him and his colleagues on obtaining metals electrochemically, produces a current density expressed in a huge number of amperes per square decimeter rather than in single digits. This major breakthrough will doubtless attract the attention of all scientists working in the field of electrochemistry. Already the first laboratory specimens of compact copper have been obtained at exceptionally high rates not hitherto attained by a single electrochemistry laboratory in the world and the existence of which at such current densities is something hardly ordinary or expected even for the boldest researchers. Professor Noninski and his colleagues Iyusien Veleva, Veselin Noninski and Tsveti Tsvetkov were able to observe the growth of copper layers on an electrode in literally minutes, while under ordinary conditions it takes days.

We are in the LEPCER [expansion unknown] Laboratory of the Higher Institute of Chemical Technology in Sofia. We are present at one of the



routine experiments. Professor Khristo Noninski, the laboratory head, and his colleagues are gathered around a model of one version of the new electrolysis cell.

"Professor Noninski, how did you achieve these results?"

"The research has a long history and took a lot of work -- both on paper and in experiments. The 'secret' perhaps is that we tried a path that from the standpoint of existing theories and methods in electrochemistry is unusual. In connection with the specific results in question here, I would like to emphasize the right attitude ~~shown~~ towards our research and to convey the gratitude of the staff for this to the State Committee for Science and Technical Progress."

In the guest-book set up in the laboratory we read the following.

Professor Lev Antropov, one of the best-known electrochemists and author of a textbook on theoretical electrochemistry used to teach students in Bulgaria: "What I have seen here is very absorbing and interesting. . . . I think that Professor Noninski's method will in time become a very highly perfected method for research and analysis."

Professor and Doctor of Chemical Sciences N. Korovin, USSR: "The methods developed in the laboratory and the related practical results are very original and of great interest, in my opinion. I believe that a joint effort between Bulgarian and Soviet scientists in the field of electrochemistry would be worth while."

Professor Guy Robert of the University of Besancon, France: "I learned many things here. . . . I hope that the research, which opens up rich potentialities, will have the success it deserves and will contribute to the progress and prosperity of the country."

The method and, in particular, Professor Noninski's invention open up new horizons for Bulgarian electrochemistry. Thanks to the high electrochemical rate it will help cut down on attendant personnel, reduce the shop space needed, lower power consumption etc. In conversation with the staff we were interested to learn that just one electrode operating according to Professor Noninski's method is comparable in productivity with an entire shop of the ones now existing.

Apparently Professor Noninski was not especially surprised at the results obtained. As far back as 1966, after trying many versions, he designed a unique electrode which made it possible for the first time in the world to study certain new phenomena in electrochemistry. For the present this research can still be conducted only in Bulgaria.

The French Chemical Society has been interested in the results and in November 1975 a special conference was organized, devoted to Professor

Noninski's research, at which the Bulgarian scientist delivered the sole paper. The full text of the paper was immediately published in the BULLETIN DE LA SOCIETE CHIMIQUE DE FRANCE [Journal of the French Chemistry Society].

The invention we are discussing is just a small part of Professor Noninski's overall work involving the area of electrochemistry investigated by him. The results obtained open up completely new prospects for theoretical and applied electrochemistry.

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## BULGARIA

### ACHIEVEMENTS OF METEOROLOGISTS OUTLINED

Sofia RABOTNICHESKO DELO in Bulgarian 20 Mar 78 p 4

[Article by Professor Doctor Stoycho Panchev, Dimitrov Prize laureate, head of Meteorology and Geophysics Chair of the Physics Faculty at the Kliment Okhridski Sofia University: "Meteorology -- Science and Profession"]

[Text] Meteorology, the international holiday of which is in two days, is almost a hundred years old as a science and profession in Bulgaria. The first workers in this field laid the foundation of the Bulgarian network of meteorological stations for making regular observations and soon went on to data processing and the analysis of results, as well as to fundamental research in this field. Outstanding among them are the names of Doctor St. Staykov, who fell in the Balkan War, K. Kirov, and Professor R. Raynov. Unquestionably the most important figure in the history of Bulgarian meteorology is Academician Krustenov, a world-renowned scientist, who died in 1977. With his name and school is associated the development of various aspects of the theory of the phase transitions of water in the atmosphere and the formation of clouds and precipitation.

Meteorology as a profession has to cover all those activities which life and practical activity in Bulgaria make necessary. This includes, for example, the issuance of general and specific meteorological forecasts, meteorological observations, climate inquiries and consultations for planning needs etc. However, modern meteorology is so widely developed as a science now that it is hardly practical in our investigation to try to cover all its problems that now exist. Efforts must continue in the future as well along those lines of inquiry which are already traditional in Bulgarian meteorology and have achieved successes of an applied-scientific and fundamental character. Examples of well-chosen new lines of inquiry in recent years are numerical weather-forecasting methods, satellite meteorology, physical oceanography etc.

The integration between the Bulgarian Academy of Sciences and the Kliment Okhridski Sofia University, as well as the formation of a Joint Earth

Science Center, plays an extraordinarily positive role in bringing together teams to work on joint coordination programs and plans, including those in the field of meteorology. In my opinion, however, there could be even greater progress.

In the field of meteorology there are now three scientific centers operating in Bulgaria where scientific research is concentrated. They are the Institute of Hydrology and Meteorology, the Geophysics Institute of the Bulgarian Academy of Sciences, and the Meteorology and Geophysics Chair of the Physics Faculty at the Kl. Okhridski Sofia University. Between them there is a line of demarcation such that each of these centers is the leading one in some area. Without thinking that this had to lead to absolutism, we believe that the optimum balance between the three centers has not yet been reached. Moreover, Bulgarian meteorological science as a whole still owes a debt to meteorological practice. Many questions from the field of regional synoptics involving the day-to-day work of forecasts for aviation and agriculture await solution not only by the very meteorologists who encounter them in their practical activity, but also by our academic institutes.

Such a great undertaking on a national scale as the hail-suppression campaign within the specialized directorate in the Ministry of Agriculture and the Food Industry awaits greater scientific assistance from all of us. Along with weather forecasts, the successes or failures in the hail-suppression campaign are watched by all the people and now represent the image and prestige of Bulgarian meteorology. There are unsolved questions in this respect regarding the dynamics of hail-cloud formation, development and forecasting, regarding the procedure of action and evaluation of effectiveness, and even regarding the organization and effectiveness of hail protection for the country as a whole. It is truly necessary to consolidate the efforts of the entire meteorology community on this.

In conclusion, let me point out that several hundred meteorology specialists are employed in the country. Although many of them are members of the Society of Physicists in Bulgaria, it makes sense to consider the question of establishing a Bulgarian meteorological society which will bring together organizationally all meteorologists and some related specialists (hydrologists, geographers etc.). This will make it possible to discuss and solve even more competently the problems of meteorology as a science and profession and will help its further development in Bulgaria.

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## EAST GERMANY

### BRIEFS

SCIENTISTS IN ANTARCTICA--Fifty GDR Scientists have spent winters in Antarctica thus far and 25 have worked in Soviet stations on the sixth continent during various summer periods. This is what Dr Manfred Schneider, deputy director of the Central Institute for Geophysics, stated at a Potsdam press conference on 17 May. At the conference some of the 12 GDR experts also introduced themselves who have participated in the 22d or 23d Soviet Antarctic expedition and have returned only recently. [Text]  
[East Berlin NEUES DEUTSCHLAND in German 18 May 78 p 1 AU]

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## HUNGARY

### TAMASSY ADDRESS TO ACADEMY ASSEMBLY ON TASKS OF AGRICULTURE

Budapest MAGYAR NEMZET in Hungarian 10 May 78 p 8

[Text] Academician Istvan Tamassy's presentation entitled "Development of Agriculture, the Food Industry and the Tasks of Science" was made at the plenary session of the Hungarian Academy of Sciences' [TMA] general meeting, to start the debate. We are publishing parts of it.

#### Our Tasks In Developing the Agriculture and the Food Industry

Acceleration of the sciences as forces of production, more specifically the aid to developing the technical-scientific revolution, that is the evolution of the process which lasts from basic research to production, depends on interdisciplinary research projects encompassing several sciences. This is so not only in projections of natural sciences, but also between the natural sciences and social sciences. In our situation today, without broad-scale application of the results of social science research, no matter how research in the natural sciences progresses, in case of one-sided growth we can only remain static.

#### Social Framework

This means that all productive work--including agricultural and food production--progresses within definite social boundaries. Therefore, the social sciences also have a large role in development. The task of social sciences is to analyze the harmony between the production forces and social conditions, learning the social realities, warning in advance of social-economic changes, revealing the contradictions and working out the ways and methods for solving them.

The science policy guidelines have called attention to the need for providing incentives for social science research work directed at answering the new questions, particularly for research projects of general nature serving the creative application and further development of Marxism-Leninism. To solve the tasks of agricultural production and research before us, cooperation of economic science is of fundamental significance from this viewpoint.

It is encouraging that in recent decades the science of economics paid increasing attention to those phenomena which result from the realities of our socialist agricultural operation. This characterizes the research projects developing within the sphere of topics of laying down the scientific foundations of our agricultural policy, which at the same time also organically fit into the thrust of national research dealing with laying down the scientific foundations for our economic policy.

Since as a consequence of accelerating scientific-technical growth, agriculture uses more and more industrial equipment and materials, it is important when they receive equipment to know what utilization characteristics and costs are. Research could therefore be improved partly by bringing the affected industrial branches and the agriculture's organizational interests closer to each other, and partly by learning how the objective needs of agriculture and the food industry could be increasingly realized in the product development of the affected branches of industry. Among the production forces--due to the influence of the needs of the scientific-technical revolution and of practice--the tools of production have changed most dynamically, in quantity as well as in quality. Therefore, complex economic examination of the national and enterprise technical conditions (mechanization, investment, energy utilization, use of materials, etc.) of agricultural production is an essential research area, with particular attention to substituting live work lost from production and the increasing cost of technological-technical development serving to increase production, and the possibilities of resolving these.

#### Complex Research

Complex research of production forces is needed so that in accordance with the goals of production, the desired ratios of production resources may be developed, adapted to the local conditions. Knowing the available resources and their ratios, the production and product structures, as well as the regional allocation of production which insure the growth of production with increasing efficiency, can be defined with greater certainty and adjusted mutually.

Enterprise cooperation and agricultural industrial integration, as well as the development and introduction of mathematical methods and application of computer technology are on the agenda in the enterprise economy research projects. Of these two areas, the questions of cooperation and integration are the ones which history placed on the agenda affecting the process of agricultural industrialization not merely in the narrow context of an enterprise-economic topic.

The development of food production adequate for the needs of the people's economy can be accomplished with a decreasing employment of manpower from year to year. Stemming from this, research of rational, efficient utilization of available manpower is extremely important, with the goal that

manpower, the effectiveness of which has been increased in this manner, may exert its activity in areas of production which insure increasing efficiency. The decrease in the number of those employed in agriculture can, and must be, counterbalanced in coming time periods by conscious reshaping of the quality of the structures of the place of employment, profession and specialized training and with the increase of financial interests.

Replacement of departing active labor creates increasing equipment shortages and investments in agriculture. Currently more than 600,000 Ft forints worth of fixed equipment is needed to compensate for one person doing agricultural work, and this trend is increasing. But it has not been sufficiently established at what efficiency the manpower which left agriculture is operating at its new place of work.

#### Unexploited Reserves

On the basis of all this, a review of the future rate in the decrease of agricultural manpower and its regional differentiation from the viewpoint of the interests of society as a whole seems justified. There are unexploited reserves in practically all of the more important branches of the social sciences, among others, for example, those having to do with cooperation between sociology and psychology. In agriculture, the operational plant unit sociology, which in some areas of industry can already demonstrate practical results in other significantly more developed socialist countries (for example in the GDR), practically has not developed even at the scientific level. Currently, according to our traditions, village sociology is preferentially practiced, even this only partially coupled to agriculture's accelerating industrialization. It would be important to examine in a more detailed manner the human labor sharing relationships of the new technicalized processes, the man-machine relationships and the man-machine-organization relationships paying particular attention to the fact that the personal factor in agriculture is becoming more and more definitive, not with respect to its quantitative but to its qualitative aspects.

The sociological studies not only register the changes occurred, but also provide specific assistance in selecting the technology, equipping the operation, developing the organization and the autonomous producer units, and so forth. Today in agriculture modern techniques are still analyzed only from the viewpoints of yield and manpower replacement. It is necessary to strengthen technical analysis from the viewpoint of the working man, particularly of the working man of the future. These studies provide assistance for the planning and future development of education. According to the requirements of technical modernization, the ratio and number of skilled workers must be increased and in accordance with this, the nature of specialized training must be modified.

It could very well be that the nature of work distribution will change in the new stage of development, not only in the direction of one-sided



specialization but also possibly with respect to merging work areas together. Moreover, re-evaluation of certain work areas which have been operating in the socialist agriculture for decades (for example, tractor driver) can also be considered. All these may, to a large extent influence our educational and manpower management perspectives, but decisions on its merits can be made only after thorough sociological studies and evaluations. All these may also provide assistance for the refinement of the training of agricultural and special engineers. Moreover, it would also be expeditious to improve the psychological and labor health care studies in agriculture. We are referring not only to strictly interpreted labor safety areas, but also more broadly to injuries related to certain jobs and their continuous, intermittent or monotonous nature, in physiological and psychological respects alike.

### Cooperation

Some psychological questions related to areas of employment which play decisive roles in our progress, should also be studied, at the same time that methods should be sought for the elimination of preferences on employment. It would also be worth it to examine certain psychological habits which negatively affect production. Such is for example the antipathy felt against night-shift work. Similarly, it would be worth while to examine the status of the awareness of the worker who is not willing to perform an activity in large operations which he would regularly do in a household plot operation.

In numerous areas it is also desirable to strengthen cooperation with such interdisciplinary sciences as systems theory, economic mathematics, cooperation research, and so forth. Systems theory and its applied activities would make it possible on the one hand to study the various dimensions (enterprise, field economic and regional spheres, agrarian macroeconomics, food management, agroindustrial complexes, and others) simultaneously and jointly without the examination of the whole would completely obscure or distort the important requirements of the parts. On the other hand, in a given area systems theory and management techniques could help with respect to developing and operating organizational units, so that the organization and operation would be better and better adjusted to the requirements of objective socioeconomic functions.

With respect to economic mathematics, econometrics and cooperation research, theoretical mathematics, apparatus and computer capacity are ahead by a decade. We still cannot sufficiently utilize the potential possibilities of this, since logical definition of the economic-social processes with enough accuracy to take on the form of mathematical formulas, has fallen behind. This phenomenon can be resolved only through the joint cooperative work of the areas affected.

## Technical Development Fund

As far as the financial basis of our research is concerned, it can be established by one glance at the data of KSH Central Statistical Office on this subject that agro-scientific research expenditures increased by about 50 percent between 1971-1976. But growth was larger in the first years of the decade of seventies, in recent years growth has slowed down. While of the total domestic research expenditures in 1970 the agrosociences had a share of 13.3 percent, in 1976 their share was only 10.5 percent. Thus, the participation share has deteriorated; growth of material supplies has slowed down--even though increasing social needs and growing tasks would justify a trend exactly the opposite of this. And the size of budgetary assistance has been unchanged since 1968. Thus it is no accident that the participation share of agrosociences in the people's economy's research expenditures is decreasing from year to year.

Agricultural production's rate of growth has accelerated in our time, research and development are connected more and more closely to production. Financial costs of research and development work exceeded 1 billion forints annually, which amounts to more than 1 percent of the production value of the large agricultural operations. Thus, research on the possibilities and conditions of forming an agricultural development fund for agricultural activity, and to urge its introduction, is justified.

We consider it important that such a concept for the use of this technical development fund be developed as soon as possible, through the realization of which current resources can also be used better.

Within the research area, the situation of university and college research is most unfavorable, even though the development of universities and colleges not just as educational but also as research bases is a fundamental social and scientific interest. In the case of our area of science, it also makes it increasingly obvious that the basic research needs of agricultural development cannot be solved by basic research units and other associated institutions. Therefore in the area of agrosociences, and also in the interest of insuring the modern training of specialists, we believe it to be one of our important tasks to develop scientific research--appropriate to the character of higher educational institutions--at the universities and colleges in the future and to support them, giving them a larger share of technical development funds for example. Modern education cannot be imagined without modern research.

## Concentration of Topics

Establishment of a technical development fund would be advantageous from other viewpoints also, among others in the interests of license purchases and utilization, and of putting research and development results into practice. During the Fourth Five-Year Plan (1971-1975) license purchases

by enterprises and from the central MUFA [expansion uncertain--possibly Technical Development Fund, Depository of Brokerage] reached only 6 percent. Currently the circumstance that in our area the "F" part of the financial resources of research and development (K+F) work is also very tight, makes the dissemination of scientific results to broad areas more difficult. In the practical utilization of new scientific-technical results and licenses, this appears as a hindering factor due to the limited nature of the enterprises to assimilate them (connected investments, lack of research and experimentation investments). By solving this, the willingness of enterprises to take initiatives and accept risks could also be significantly increased.

Another important area of our science policy activity is to coordinate scientific research plans with the people's economy's plans and through this achieve reasonable concentration on topics.

During the preparation of the current five year plan, in our area, three national-level and 15 portfolio-level research goal programs, as well as 13 portfolio-level main research directions and 13 selected institutional tasks were created for the period of the plan. Of the selected-level research-development tasks, 18 belong to the National Long Range Scientific Research Plan (OTTKT). Reasonable selection and weighing (about 61 percent decrease) of the selected tasks resulted in significant thematic concentration.

In the spirit of science policy guidelines, in close cooperation with the academic and associate top level authorities, in the future we will strive even more to manage the research potential even more reasonably than before. Based on experience, it can already be established that as a consequence of more vigorous concentration of research and a higher degree of selectivity, we must rely to an increasing extent on accepting the scientific results of other countries--first of all of the CEMA countries, and among them, the Soviet Union primarily.

Thus, we interpret selective development to mean that we must deal primarily with the solution of fundamental research questions which are of "Hungaricum" character, since we can solve them most successfully here in this country due to unique domestic conditions and needs.

#### Greater Degree of Planning

In increasing international cooperation, it is a particularly important task for us, even within the area of agrosiences, to develop our relationships with the CEMA countries, primarily the Soviet Union more vigorously. Among the forms of cooperation thus far, the mutual exchange of written information about results, coordination of research plans and joint evaluation of the results at longer time intervals--every 2 or 3 years--are not efficient enough today. There are good initiatives, particularly in the

veterinarian science, forestry, horticulture, plant improvement, plant growing and soil science areas. However, it is necessary to continue research of joint topics developed within the framework of cooperation, with a greater degree of planning than before, and to avoid the still numerous restrictions on more efficient cooperation and decrease the bureaucratic difficulties.

It would be desirable for international scientific cooperation to work more closely with production cooperation, through specialized and co-operative agreements.

Receipt of modern foreign scientific and technical advances (production processes, plant and work organization methods) must be broadened through cooperation. Efforts must be made for an increase in license purchases, and domestic research-development capacity must be used to further improve on the advances purchased abroad.

But this is a dual problem, it depends partly on the researchers, university instructors, and partly on those who initiate the purchase of licenses whose goal is to improve products. Institutional and educational researchers have thus far only rarely joined in initiatives for adapting foreign advances at the enterprise level. More than a few failures could have been avoided if researchers had been included in the adaptation of foreign licenses and methods (types, equipment) not only after, but before the fact.

One of the obstacles to better dissemination of domestic research results in practice is within ourselves also. Research results are often not transformed into complex production methods and technological processes which the plants can accept. This characterizes primarily the research projects of research institutions and universities, because we can more easily find examples of the appearance of complex research results from agricultural enterprises (Babolna, poultry).

The reason for this is the difference between the situations of research at universities and research institutions, and at enterprises. That is, while practical application of the results of enterprise research is supported by specific financial advantages, organizational energy and mainly by management efforts, research at universities and research institutions does not receive such assistance.

Solution of the problem could be helped to a significant extent in the future by the creation of goal-oriented associations. We approve this direction. In our opinion, these production-scientific associations will create a joint interest and occasionally the joint acceptance of risks by accepting the medium and long range research-development tasks in the application of research results. There already are modest initiatives in this area (Protol, Gabonamag [Grain Seed], KAHYB [expansion unknown], and so forth).

Today, research strongly illustrates the process which is expressed by greater dependence on each other between the branches of the people's economy. This is valid for science also. Today, domestic agrosience is fundamentally able and suitable for carrying out the tasks defined in the MSZMP KB's [Hungarian Socialist Workers' Party Central Committee] resolution of March 1978. But to carry out assigned goals and tasks, integrated activity, and cooperation of other interested and affected branches of science is also necessary in addition to the researchers working in the areas of agriculture and food industry. Therefore, in the interest of this, efforts must be made to create and develop close cooperation, not only within the scientific branches, but also between the scientific branches, and also within CEMA, primarily with Soviet science.

Several party resolutions have emphasized that the preparation and professional knowledge of science, our scientists and researchers, are the most significant reserves in the development of our society. It is a fundamental task to use this intellectual energy and capacity well. We would be pleased if this intellectual capacity and energy were to be used as well as possible in carrying out the MSZMP KB's March 1978 resolution.

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## PROGRESS IN COMPUTER SCIENCES, OTHER FIELDS STRESSED

Bucharest VIATA STUDENTEASCA in Romanian 12 Apr 78 p 3

[Article by Mircea Florin Sandru: "Workdays at the National Exposition of Scientific and Technical Creation"]

[Text] A Vast Laboratory for the Exchange of Experience and the Confrontation of Ideas

The National Exposition of Scientific and Technical Creation recently had a great influx of visitors. The spirit of work, imparted as far back as on opening day by Comrade Nicolae Ceausescu, who had an extensive conversation with the researchers, the designers, the teaching personnel, the specialists, the workers and the heads of economic units, was present even then in the exchange of experience and ideas that the makers had with the public. In front of the stands, the constant conversation, the questions, the explanations and the practical demonstrations denoted feverish activity and great interest on the part of the visitors coming from all economic units and from all corners of the country in order to acquaint themselves, during this extensive synthesis that the exposition achieved, with the results of the activity of scientific and technical creation, an activity that, by means of the steps taken on the initiative of the secretary general of the party, is experiencing unprecedented expansion. The figures written on the panels are indicative in this regard: during the mass stage of the "Cintarea Romaniei" [Song of Romania] National Festival, 1,085,604 working people, 665,379 of them being workers and 267,730 young people, participated in the activity of scientific and technical creation. Some 97,079 objectives of scientific research, representing 40,987 new or modernized products, 9,490 new or improved technologies and technological products and 12,258 new systems of management and organization, 1,433 of all of them being inventions, were achieved during this period. The contribution of scientific and technical creation in production on the whole is also illustrated by the percentage of new and redesigned products in the total volume of production, this percentage being 18.4 percent in 1977 and rising to 45 percent in 1980. Staying in the field of figures, we mention that, through the introduction of the results of scientific and technical research into production, a savings of 26,464 tons of metal, 637,600 tons of conventional fuel and 43,000 megawatt-hours, figures that speak for

themselves about the rise in the efficiency of production under the conditions of the introduction of new technology, will be achieved in 1977.

In front of the stands, the visitors--workers, technicians, engineers, researchers, designers, teaching personnel, pupils, students, and people of all professions--lingered for a long time, seeking explanations concerning the novel character and the technical and operating parameters of the prototypes exhibited. The most interesting and most fruitful conversations were between the makers and their colleagues who work in the same specialized field. In front of the exhibits there were true confrontations of ideas, exchanges of experience, of sure utility in their future activity. An important place in these conversations was occupied the problems of assimilating these new products and technologies into production, the virtual beneficiaries of the results of the research being interested in the dates for assimilating the exhibits into production, in order to conclude contracts. Thus, the exposition did not remain a mere exposition but was a vast laboratory for the exchange of experiences and ideas, a splendid occasion for the specialists to meet, a true gala of Romanian scientific and technical creation.

#### Scientific and Technical Creation--a Presence in Each Staff of Working People

In its entirety, the exposition demonstrated convincingly the vast human and material potential that scientific and technical creation in our country has and the strong competition generated by the action for scientific and technical creation within the "Cintarea Romaniei" National Festival. The visitor had the pleasant surprise of seeing that at the exposition there were present, with results of sure value, the overwhelming majority of the staffs of working people, from the big enterprises and the central research and design institutes to the small units such as the production sections and shops of local importance or the agricultural mechanization stations, whose results support the idea that in each work staff the constant concern for the activity of creation and for the introduction of the new finds its optimum framework for affirmation when enthusiasm and creative effort exist. It is also important to note the fact that many exhibits, from all the production sectors, bore the inscription "A Youth Action," which indicates the fact that the respective exhibits were achieved by means of the direct contribution of the young workers, technicians and engineers, who, as the present exposition demonstrated, constitute a leading presence in scientific research.

#### Dacia 1300 Bodies of Polyester and Glass Fiber

It is of course difficult to include in the space of these remarks the extremely diverse palette of the achievements assembled by the exposition in the central pavilion of the exposition complex in Piata Scintei. Following the trajectory taken by the visitors through the three levels, we will mention, by means of a selection whose criteria are the reporter's, a number of exhibits presented at the stands of the enterprises, institutions, industrial centrals, and ministries that exhibited here. The new procedures for reduction of metal corrosion and the installation for oxyacetylene metalization, achievements that lead to the extension of the life of metal parts in use, were exhibited in the stand of the Center for Heat Engineering Research,

within the ITB [Bucharest Transportation Enterprise], located right at the entrance. Another achievement catches the attention of motorists: the Dacia 1300 automobile bodies, made of polyester and glass fiber, a solution that leads to the achievement of significant savings of metal. The stand of the Central Institute of Physics presented important achievements in the field of semiconductive and varied-conductivity materials: piezoelectric crystals and devices, oxidic materials for electronic components, and filiform semiconductive materials and superconductive materials. The value of these achievements is also illustrated by the economic efficiency registered in the production of these materials. In the production of piezoelectric materials, for instance, a value of 667 lei results from 1 leu invested, and in the production of titanates, 1 leu invested equals 2,000 lei. The electron beam welding outfit and the plasma installation for smelting, casting, welding, tempering and purification, situated at the highest level of world technology, are extremely interesting. In general, the research of the Central Institute of Physics materializes the newest technologies: let us mention in this regard the typified installations for vacuum technology, the Lazot-100 nitrogen laser, the installation for nondestructive examination by means of turbulent currents, and the laser telephone.

#### **Toward Complete Mechanization and Automation of the Production Processes in Agriculture**

The research in the field of equipment for food chemistry and industry, especially in the field of the utilization of substitutes, and of the manufacture of completely automated bottling units is very interesting. The research institutes for agricultural mechanization and the units in this specialty have important achievements in the field of the mechanization and automation of the production processes. There are an interesting pneumatic grapevine-grafting machine achieved by the "Dealul Mare" IAS [State Agricultural Enterprise], a device for automatic supervision of pumping plants, a windmill for operation of electric pumps and installations in agriculture, and a very modern installation for making tin cans by means of rolling, a technical achievement of great ingenuity. The stand of the National Institute of Metrology exhibited a very diverse range of measurement and control apparatus, achieved at a world technical level, with higher accuracy and with a much longer operating life. The stands of enterprises with a mechanical specialty also presented important achievements: the Cugir Mechanical Enterprise presented, among other things, electromagnetic brakes with high performances; the Plopeni Mechanical Enterprise presented a special ball-grinding machine and a universal tool-grinding machine, achievements that lead to a spectacular rise in labor productivity; and Enterprise No 2 in Brasov presented an achievement of sure interest to motorists: the low-consumption carburetor for the Dacia 1300 automobile. In general, the stands of the machine-building industry exhibited achievements that are distinguished by high technicality and by solutions that lead to a considerable rise in labor productivity in these sectors. The hydraulic panel for the operation of machine-tool sets, produced by the Sibiu "Balanta" Enterprise, the equipment for the programming and numerical control of machine tools, designed by the ICPMUA [Institute for Research and Design of Machine Tools and Aggregates] and produced by the Arad Lathe Enterprise, and the automatic machine for simultaneous



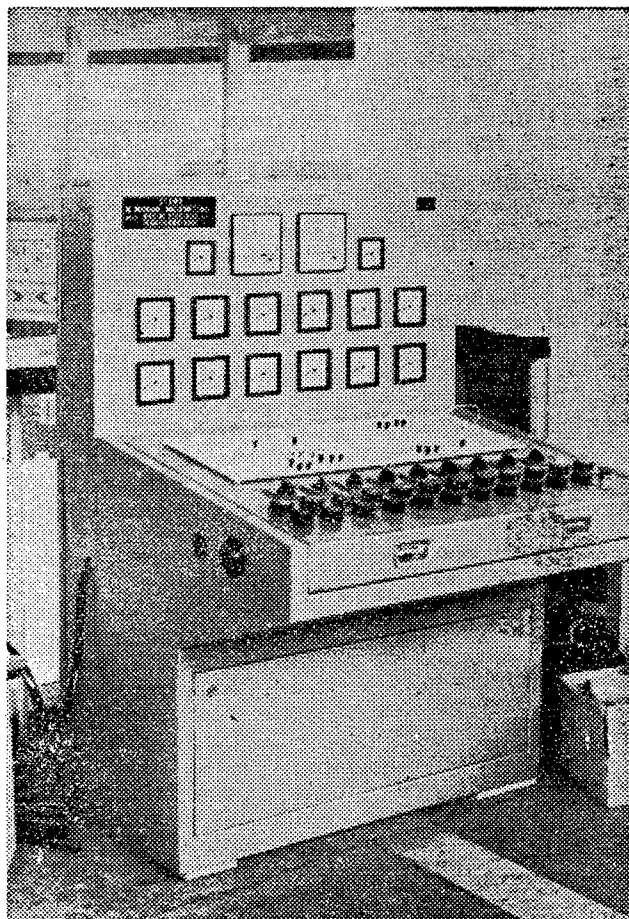
lathing at both ends, produced by the Risnov Tool Enterprise, are only a few examples in this regard, achieved in the activity of self-equipping. Two outfits for processing metal by means of electroerosion were also in a prominent place at the exposition: the machine for processing by means of electroerosion with a filiform electrode, achieved, in collaboration, by the ICPTCM /expansion unknown/, IPA /the Research and Design Institute for Automation/ and the ICPE /Research and Design Institute for the Electrical Engineering Industry/, and the machine for processing by means of electroerosion, Elero-01, achieved by the "Electrotimis" Enterprise.

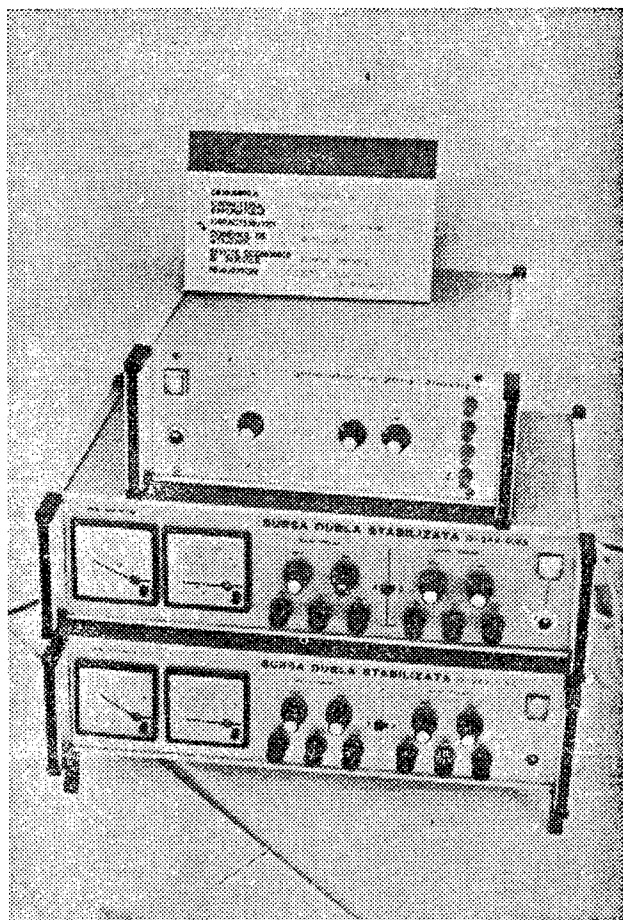
#### The Family of Romanian Computers Is Growing

Special interest was aroused among the visitors by the stands of the research and design institutes and the enterprises in the field of electrical engineering, electronics, data processing and computer technology, among which we mention the Research Institute for Electronic Components, the Research Institute for Computer Technology, the Research Institute for Automation, the "Electronica," "Electrotehnica," "Automatica" and "Electromagnetica" enterprises, the Kinescope Enterprise, FEA /expansion unknown/, ELBA /expansion unknown/, the Timisoara AEM /expansion unknown/, "Electroarges," the Alexandria Enterprise for Electric Panels and Boards, the Titu Enterprise for Electric Appliances and Installations, "Electromures" and so on. The new achievements in the field of computer technology hold the attention: the Felix MC-8 and FC-96 computers, the Independent I-100 minicomputer, the terminals compatible with television systems, and the Ecarom-brand electronic equipment for automatic supervision and control of production processes. The modern and economical apparatus for electrical home use were followed with much interest by the visiting public: the vacuum cleaners with a rod produced by "Electroarges," the Ravent heating apparatus, with economical operating conditions, produced by "Electromures," the new types of refrigerators and so on. The stands of the extractive industry caught our attention with the equipment for underground work, which have high technicality and lead to a net rise in labor productivity. A self-propelled work outfit with a pneumohydraulic drive, named Diamant, was achieved at the Baia Sprie mine and a drill carriage with two arms was achieved at the Suior mine, both machines being extremely efficient in the production process. The sampling station of high technicality and the simulator for automating the deep pumping plant, achieved by students at the Petroleum and Gas Institute in Ploiesti, are among the outstanding achievements of the oil-industry workers.

In front of all the stands, many of them in operation, the conversations between the public and the specialists continued with intensity until closing day. Figures were noted down, measurements were taken, and the products achieved were examined. A large part of the visitors are students in the technical sections and departments. Moreover, within the exposition, as we already stated, a student section that exhibited valuable achievements of student scientific research was also set up.

The sector reserved for the technical-scientific creativity of the students collected together, in numerous displays, the best achievements of student researchers in all the university centers of the country. Illustrating the great breadth of scientific research among the students, research which has become an essential component of the educational process, the creations presented in the exposition stand out as much for the originality and complexity of their scientific and technical conception as for the skill and technique with which they were executed in the school workshops. Most of the exhibits represent inventions, innovations, and rationalizations, original solutions which satisfy concrete needs of production.





We present in the accompanying photographs three of the achievements of students in the Bucharest Polytechnical Institute: "The multifunctional research stand for electric machines and transformers (left)", "the RC generator for frequencies between 20 Hz and 200 KHz" (above) and "the infrared transmission system for TV signals with PLL technology" (below).

## YUGOSLAVIA

### SCIENTIFIC CONFERENCES IN MACEDONIA

#### Symposium on Hot Working of Materials

Skopje NOVA MAKEDONIJA in Macedonian 26 May 78 p 7

[Text] Struga--The Second Yugoslav Symposium on Hot Working of Materials has begun. The Economic Chamber, the Skopje "Tito" Metal Plant, and the Society for Hot Working of Materials are taking part in the symposium. There are about 400 participants. During the 3 days of the conference, 24 reports by eminent specialists of Yugoslavia and Austria, West Germany, and Switzerland will be discussed.

The purpose of the symposium is to exchange know-how on the latest achievements in the field of hot working of materials.

#### Allergists and Immunologists Conference

Skopje NOVA MAKEDONIJA in Macedonian 26 May 78 p 7

[Text] The Sixth Scientific Conference of Yugoslav Allergists and Clinical Immunologists has begun in Ohrid under the sponsorship of the Macedonian Executive Council. Participating in the conference are over 150 specialists from Yugoslav medical centers who are concerned with the prevention and treatment of allergic conditions. The conference was opened by Prof Dr Ljubomir Kotevski, President of the Society of Allergists and Clinical Immunologists of Yugoslavia. The participants were greeted by Peter Dzundev, republic secretary for Health and Social Policy.

The attention of the participants at the 3-day meeting will be focused on various allergy symptoms, and the problems of allergy symptoms in children as well as on experimental immunology and immunotherapy, and specialized know-how will be exchanged.

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